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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/767,477	01/28/2004	David R. Czajkowski	90204	5072

20529 7590 06/28/2006

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112 South West Street
Alexandria, VA 22314

EXAMINER

LOHN, JOSHUA A

ART UNIT	PAPER NUMBER
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2114

DATE MAILED: 06/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/767,477	CZAJKOWSKI, DAVID R.	
	Examiner	Art Unit	
	Joshua A. Lohn	2114	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 7-10 and 13-15 is/are rejected.
- 7) ☒ Claim(s) 5, 6, 11, 12 and 16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 August 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 7-10, and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grochowski et al., United States Patent number 6,625,756, filed December 21, 1999, in view of Lloyd et al., United States Patent number 6,298,289, filed April 24, 1999.

As per claim 1, Grochowski discloses a fault tolerant computer comprising: a processor to execute instructions (Grochowski, col. 4, lines 40-41), said processor including instructions to execute an original and mirror instructions to produce results to be compared in a redundancy routine (Grochowski, col. 4, lines 40-53, where one execution core is the original instruction and the other execution core is the mirror), a comparison circuit coupled to compare an original result and a first mirror result, said comparison circuit providing an output of a first state when said original result agrees with said mirror result (Grochowski, col. 4, lines 40-53, where agreement results in retirement state) and an output of a second state when said original result and said mirror result disagree, said second state comprising an error signal (Grochowski, col. 4, lines 50-55, where the second state is the reissue error state). Grochowski fails to disclose that the system is radiation hardened and that the error being signaled is an SEU error.

Lloyd discloses making a processor radiation hardened (Lloyd, col. 7, lines 3-15) and having a reliable processor be prepared for SEU errors (Lloyd, col. 10, lines 42-56).

It would have been obvious to one skilled in the art at the time of the invention to use the additional reliability aspects of Lloyd in the invention of Grochowski.

This would have been obvious because Grochowski discloses a desire to avoid all processing errors (Grochowski, col. 3, lines 23-25) using a processor in a voting system (Grochowski, col. 4, lines 40-55). It would have been obvious to expand the reliability coverage of Grochowski to include the radiation errors and SEU errors like those that the processor is protected from in the voting system of Lloyd (Lloyd, col. 7, lines 3-15 and col. 10, lines 42-56). This would obviously benefit the desires to avoid all processing errors, disclosed by Grochowski, by providing fault tolerance in more operating environments.

As per claim 2, Grochowski and Lloyd further disclose a fault tolerant computer according to claim 1 wherein absence of an original or mirror result comprises disagreement with the other result (Grochowski, col. 5, lines 50-55, where it is inherent that an absence of either signal would result in a comparison disagreement).

As per claim 3, Grochowski and Lloyd further disclose a fault tolerant computer according to claim 1 wherein said comparison circuit output is coupled to inhibit production of additional mirror results when said output is in the first state (Grochowski, col. 4, lines 40-55, where additional mirror results are only produced if a mismatch condition occurs).

As per claim 4, Grochowski and Lloyd further disclose a fault tolerant computer according to claim 3 wherein said processor is provided with instructions to perform an SEU recovery routine in response to detection of an SEU error signal (Grochowski, col. 4, lines 53-55, where the re-issue operation is the recovery routine, and the SEU error is disclosed by Lloyd, col. 10, lines 42-56).

As per claims 7-10, these claims are merely a method for executing the apparatus of claims 1-4. The method of operation is also disclosed by Grochowski and Lloyd, and the above rejection of claims 1-4, provided above, would apply to claims 7-10 as well.

As per claims 13-15, these claims are merely a programmed medium for providing the same abilities of the methods of claims 1-4 above. Grochowski and Lloyd disclose a programmed medium (Grochowski, col. 3, line 57 through col. 4, line 4), and as such the rejection applied to claims 1-4 above would apply to claims 13-15 as well, where the true result of claim 13 is taught the same as the first state in claim 1 and the not true result of claim 13 is taught the same as the second state in claim 1.

Allowable Subject Matter

Claims 5, 6, 11, 12, and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

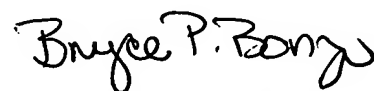
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure is provided on form PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua A. Lohn whose telephone number is (571) 272-3661. The examiner can normally be reached on M-F 8-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Scott Baderman can be reached on (571) 272-3644. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JAL



BRYCE P. BONZO
PRIMARY EXAMINER